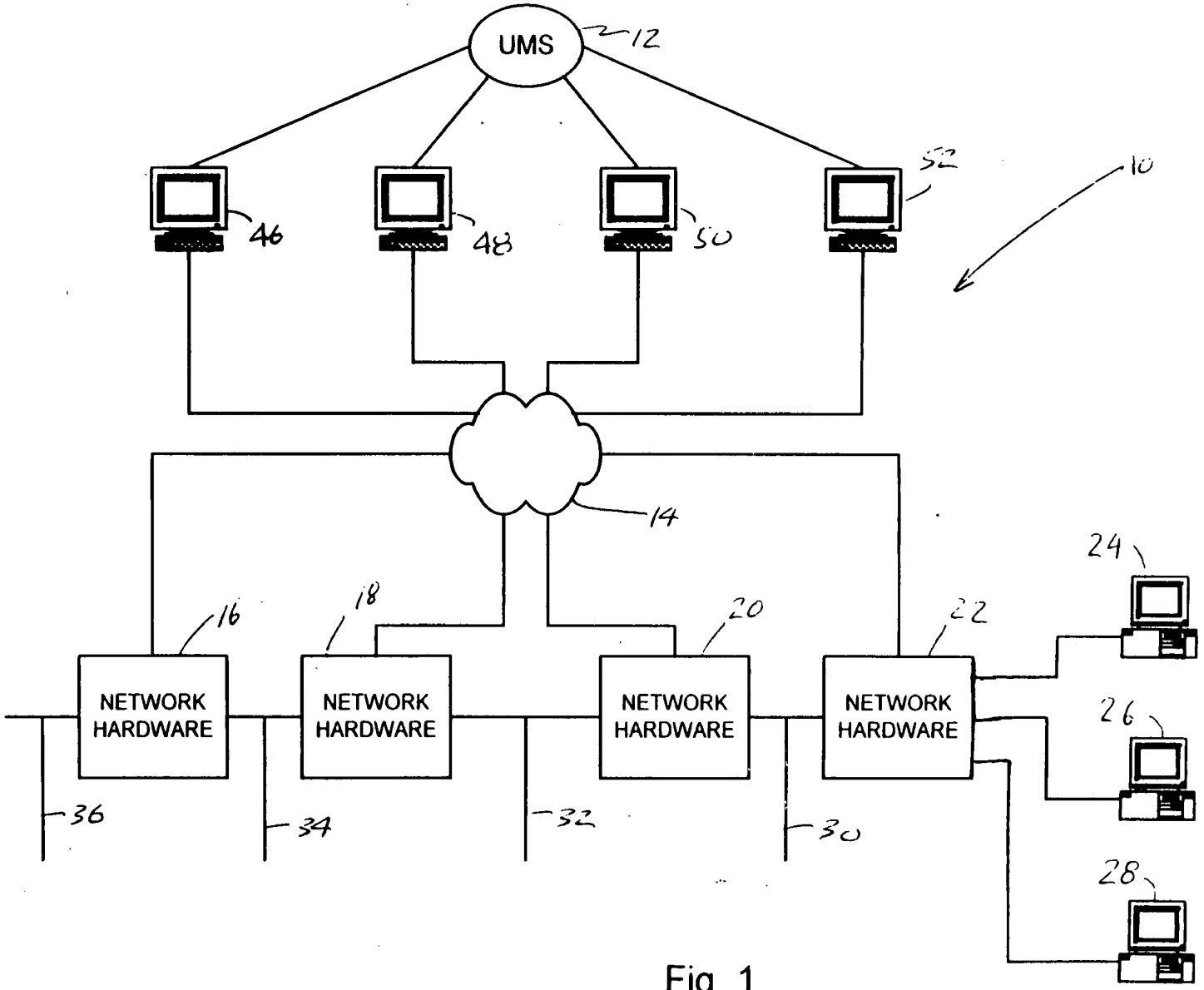

UMS
12
10
52
46
48
50
14
16
18
20
22
24
26
28
NETWORK HARDWARE
NETWORK HARDWARE
NETWORK HARDWARE
NETWORK HARDWARE
36
34
32
30

Fig. 1

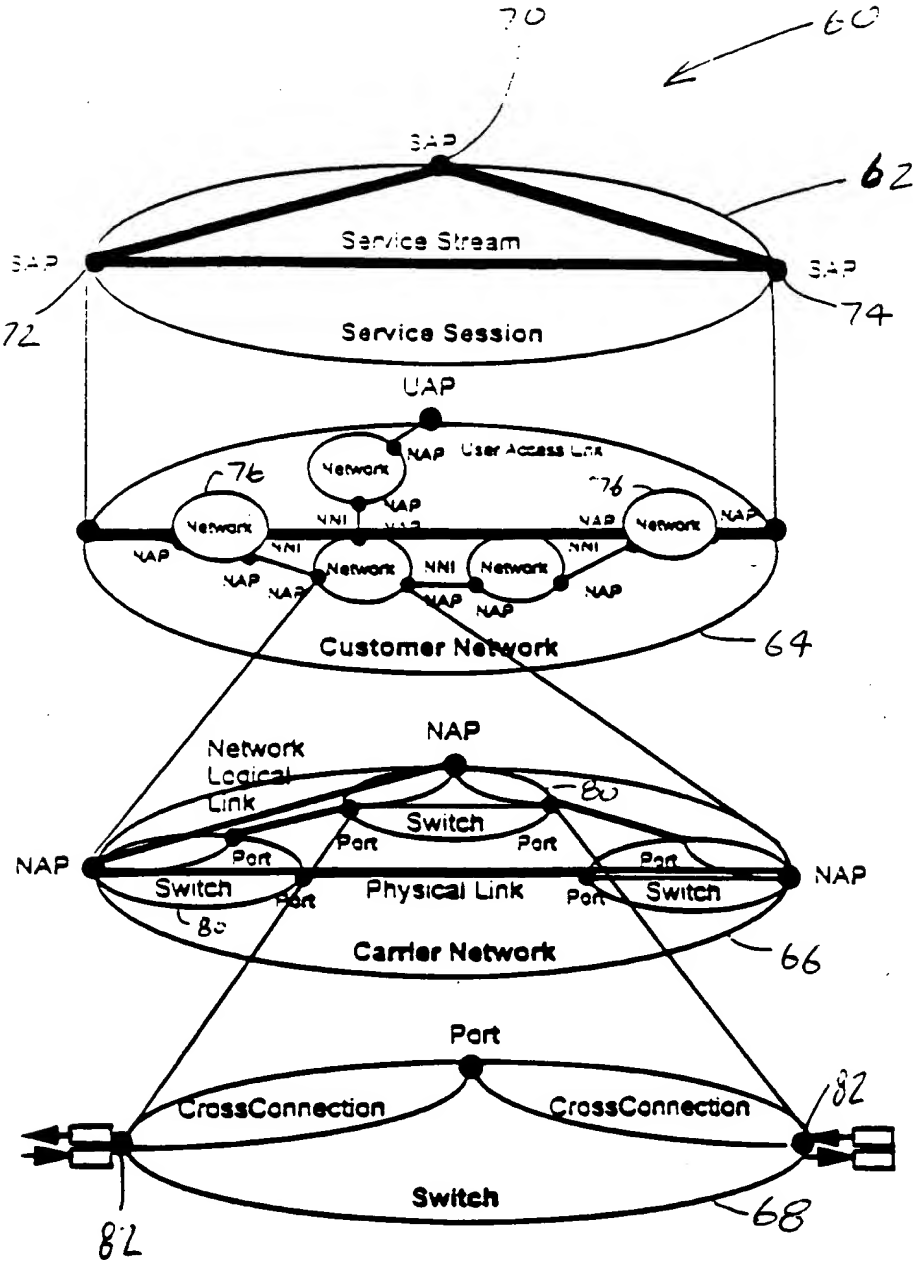

70
60
SAP
62
Service Stream
SAP
SAP
72
74
Service Session
UAP
NAP
User Access Link
Network
76
NNI
Customer Network
64
NAP
Network Logical Link
80
Switch
Port
Physical Link
Carrier Network
66
Port
CrossConnection
82
Switch
68

Fig. 2

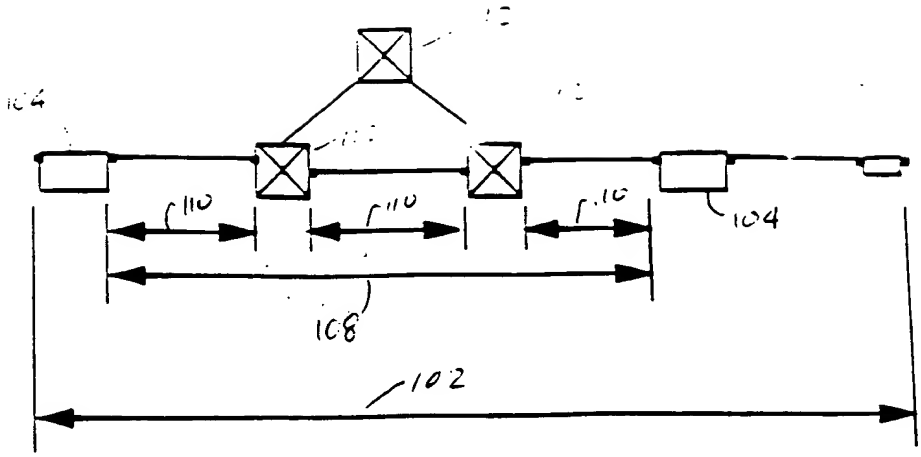


Fig. 3

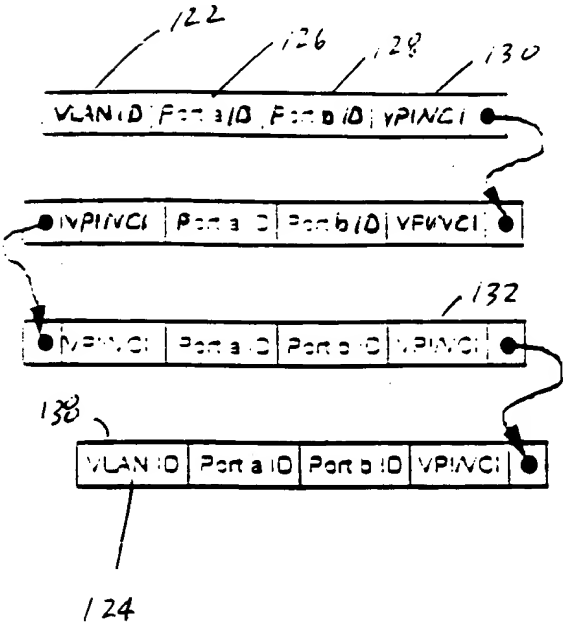


Fig. 4

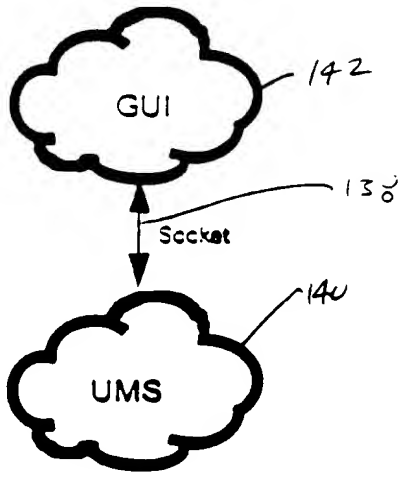


Fig. 5

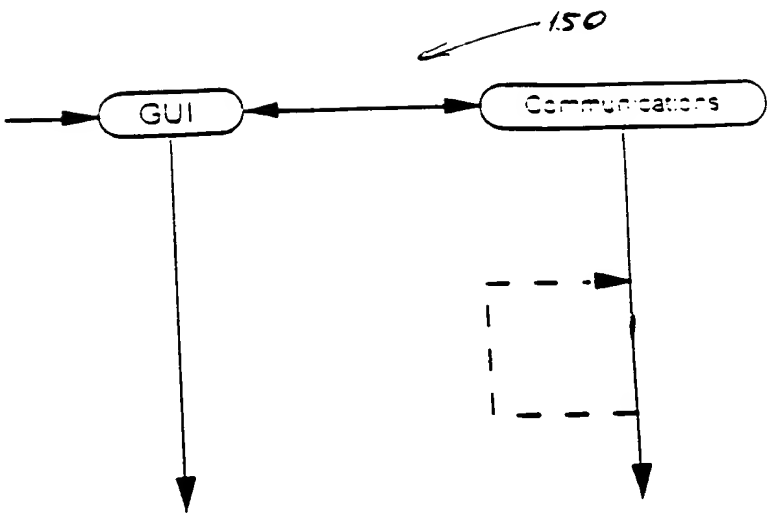

150
GUI
Communications

FIG. 6

Service Management Layer
172
Network Management Layer
174
Element Layer
176

FIG. 7

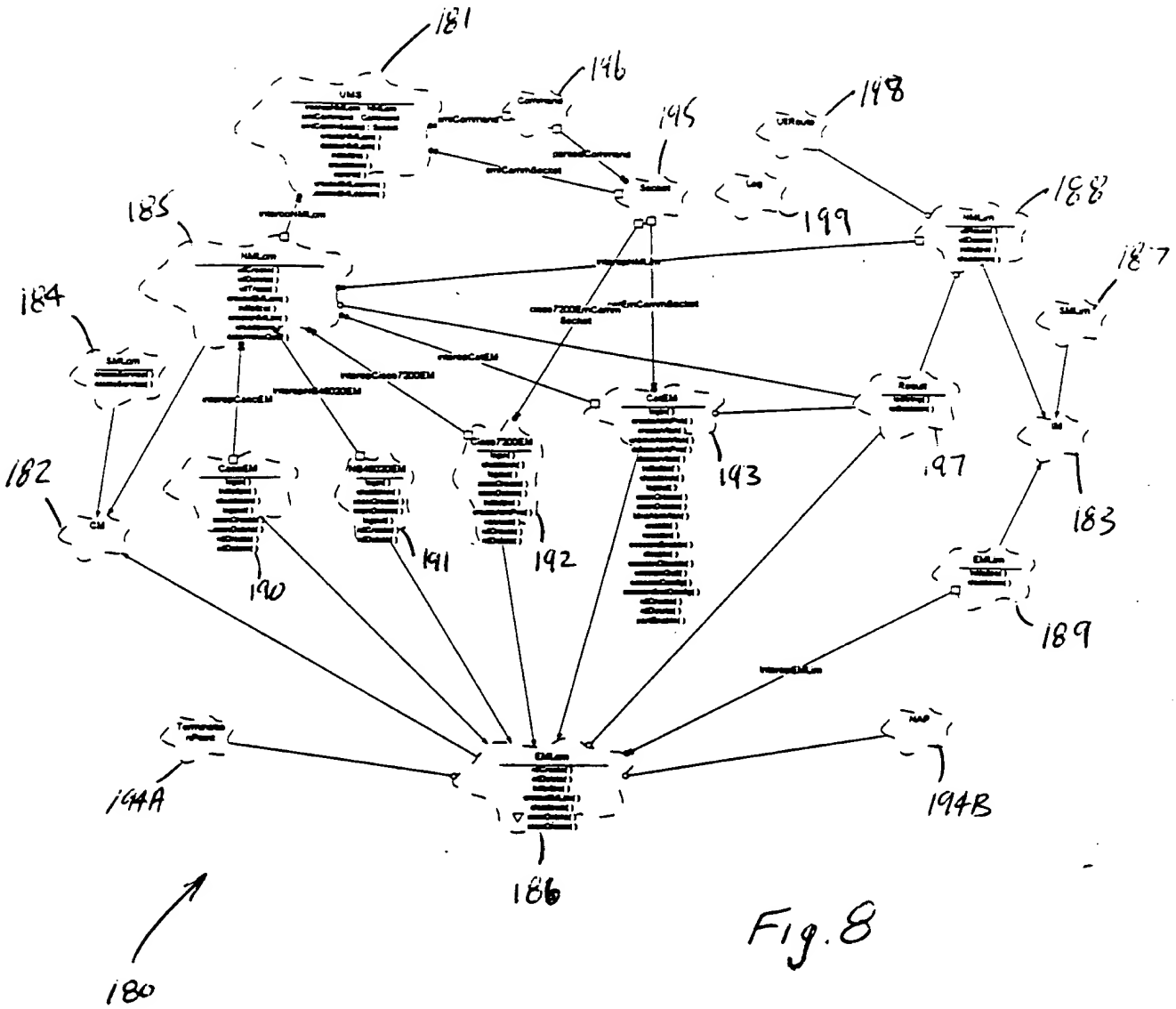

181
146
145
148
199
188
185
187
184
182
183
197
143
190
191
192
189
194A
194B
186
180

Fig. 8

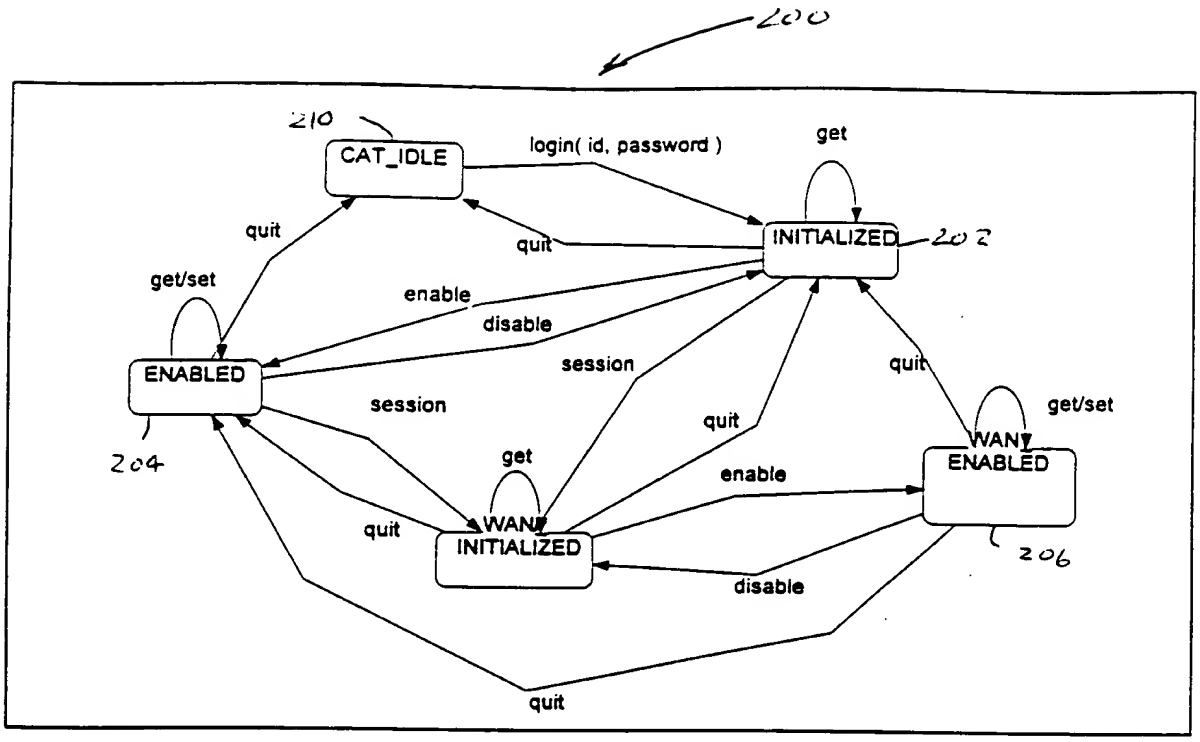

200
210
CAT_IDLE
login(id, password)
get
INITIALIZED
202
quit
quit
get/set
enable
disable
ENABLED
session
session
quit
quit
get/set
WAN
ENABLED
204
get
enable
WAN
INITIALIZED
quit
206
disable
quit

Fig. 9

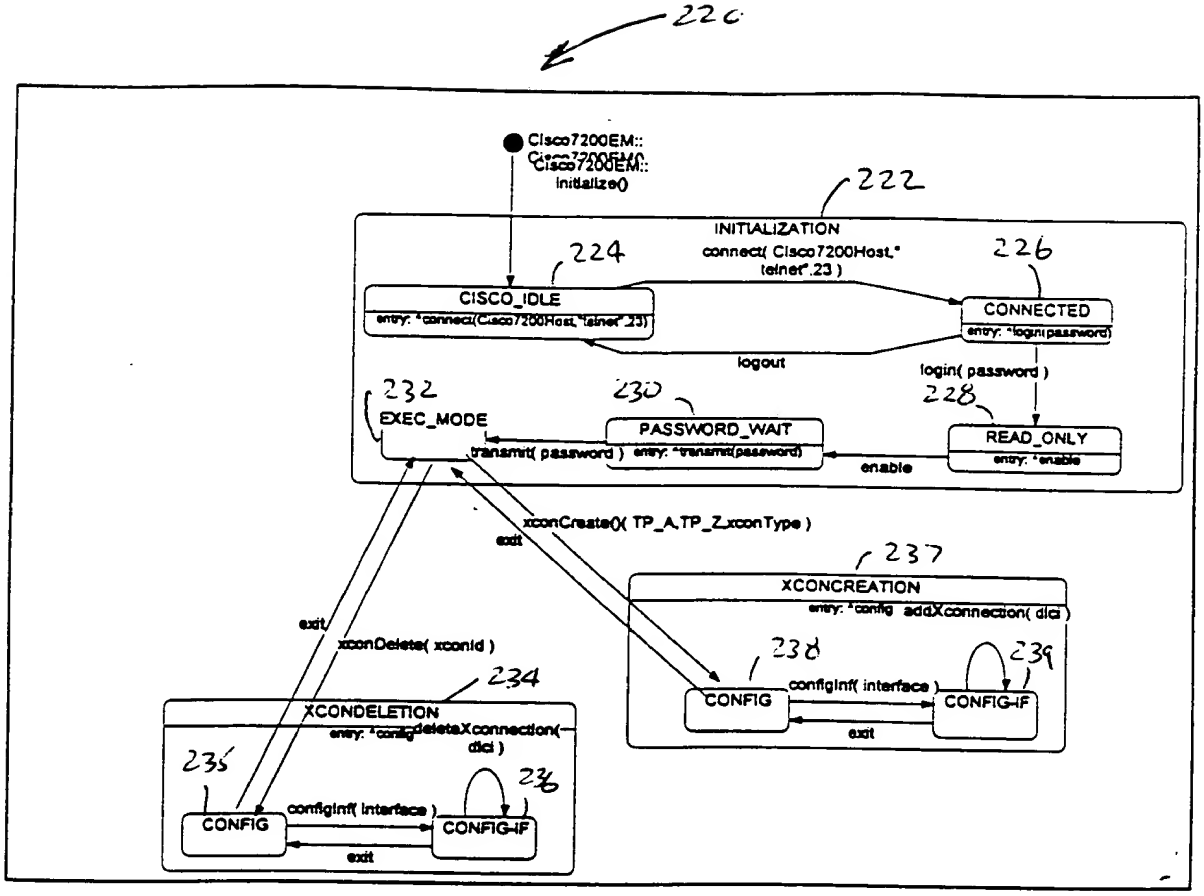

220
Cisco7200EM::
Cisco7200EM::
initialize()
222
INITIALIZATION
connect(Cisco7200Host,"
telnet",23)
224
226
CISCO_IDLE
entry: ^connect(Cisco7200Host,"telnet",23)
CONNECTED
entry: ^login(password)
logout
login(password)
232
230
228
EXEC_MODE
PASSWORD_WAIT
entry: ^transmit(password)
READ_ONLY
entry: ^enable
transmit(password)
enable
xconCreate()(TP_A,TP_Z,xconType)
exit
237
XCONCREATION
entry: ^config addXconnection(dlci)
exit
xconDelete(xconId)
238
239
234
configInf(interface)
CONFIG
CONFIG-IF
exit
XCONDELETION
entry: ^config deleteXconnection(
dlci)
235
236
configInf(interface)
CONFIG
CONFIG-IF
exit

Fig. 10

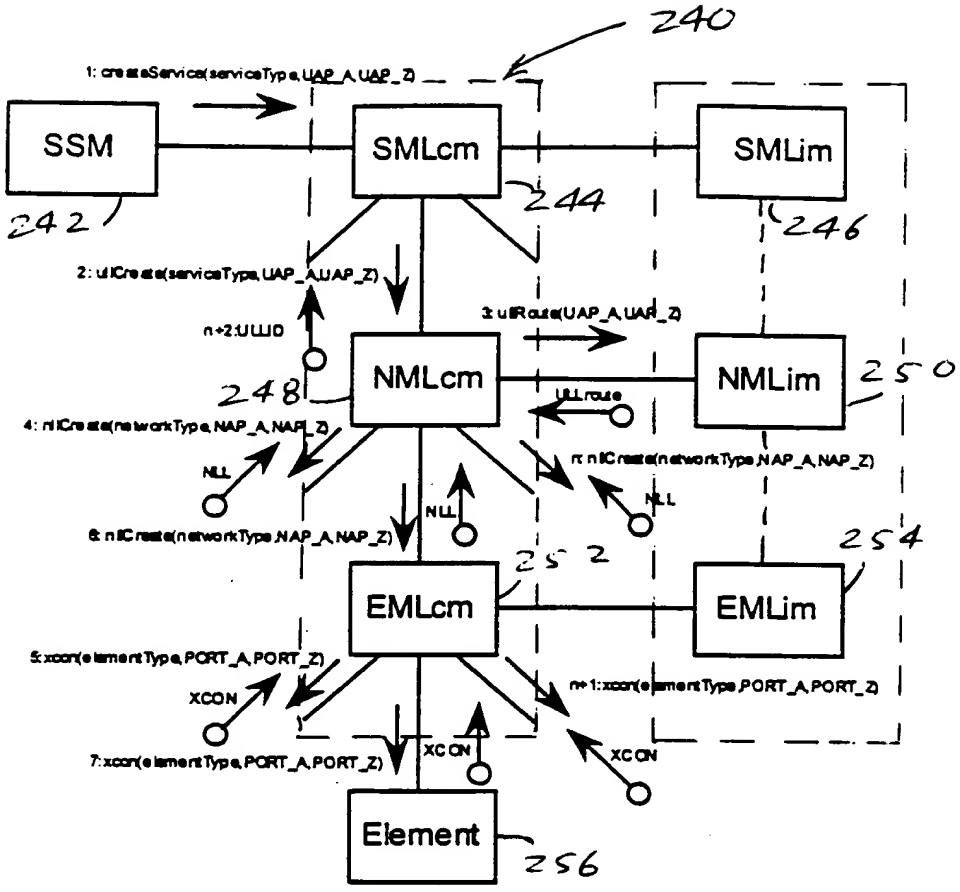

240
1: createService(serviceType,UAP_A,UAP_Z)
SSM
SMLcm
SMLim
242
244
246
2: ulCreate(serviceType,UAP_A,UAP_Z)
n+2:ULLID
3: ulRoute(UAP_A,UAP_Z)
NMLcm
NMLim
248
250
ULLroute
4: nlCreate(networkType,NAP_A,NAP_Z)
NLL
n: nlCreate(networkType,NAP_A,NAP_Z)
NLL
6: nlCreate(networkType,NAP_A,NAP_Z)
NLL
252
254
EMLcm
EMLim
5:xcon(elementType,PORT_A,PORT_Z)
XCON
n+1:xcon(elementType,PORT_A,PORT_Z)
7:xcon(elementType,PORT_A,PORT_Z)
XCON
XCON
Element
256

Fig. 11

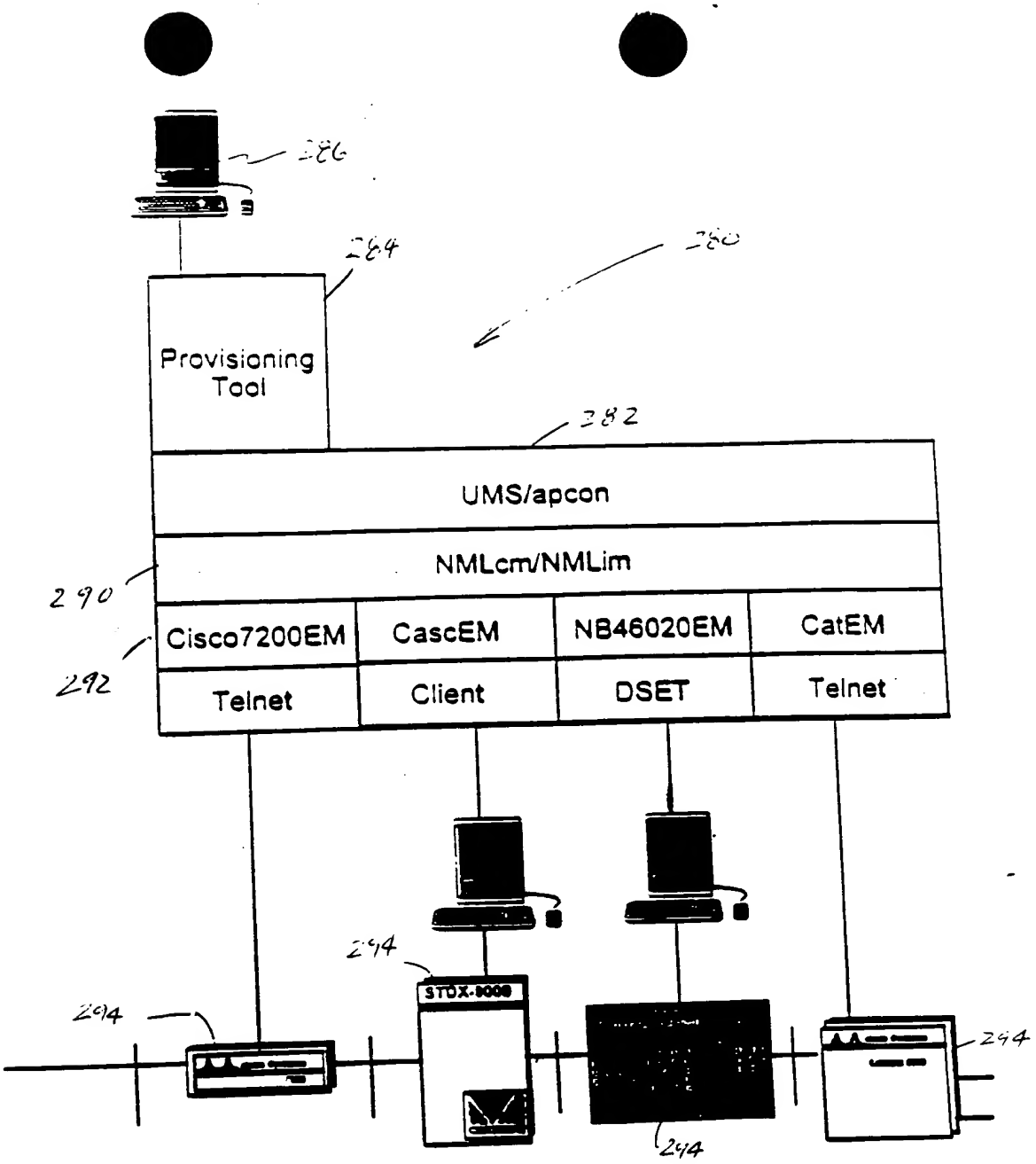
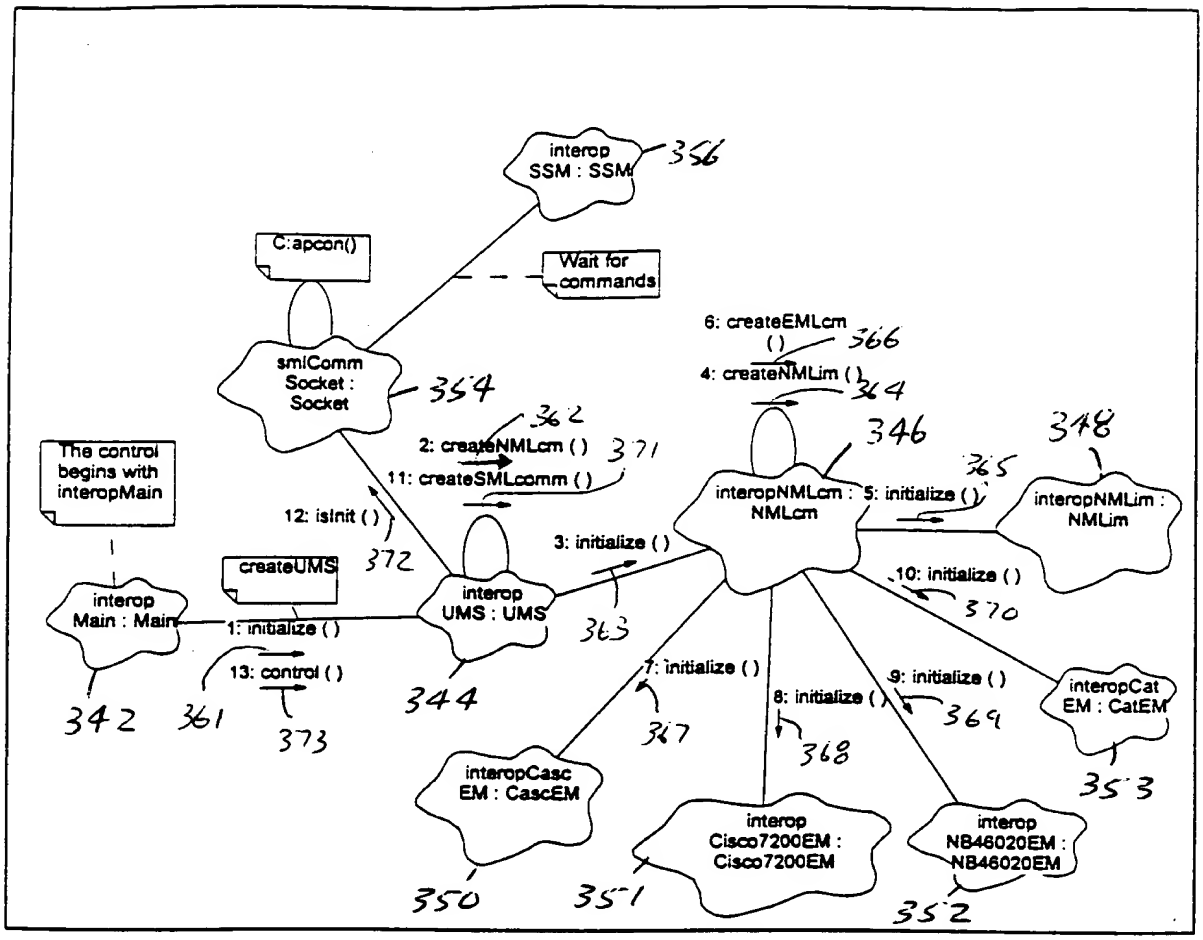
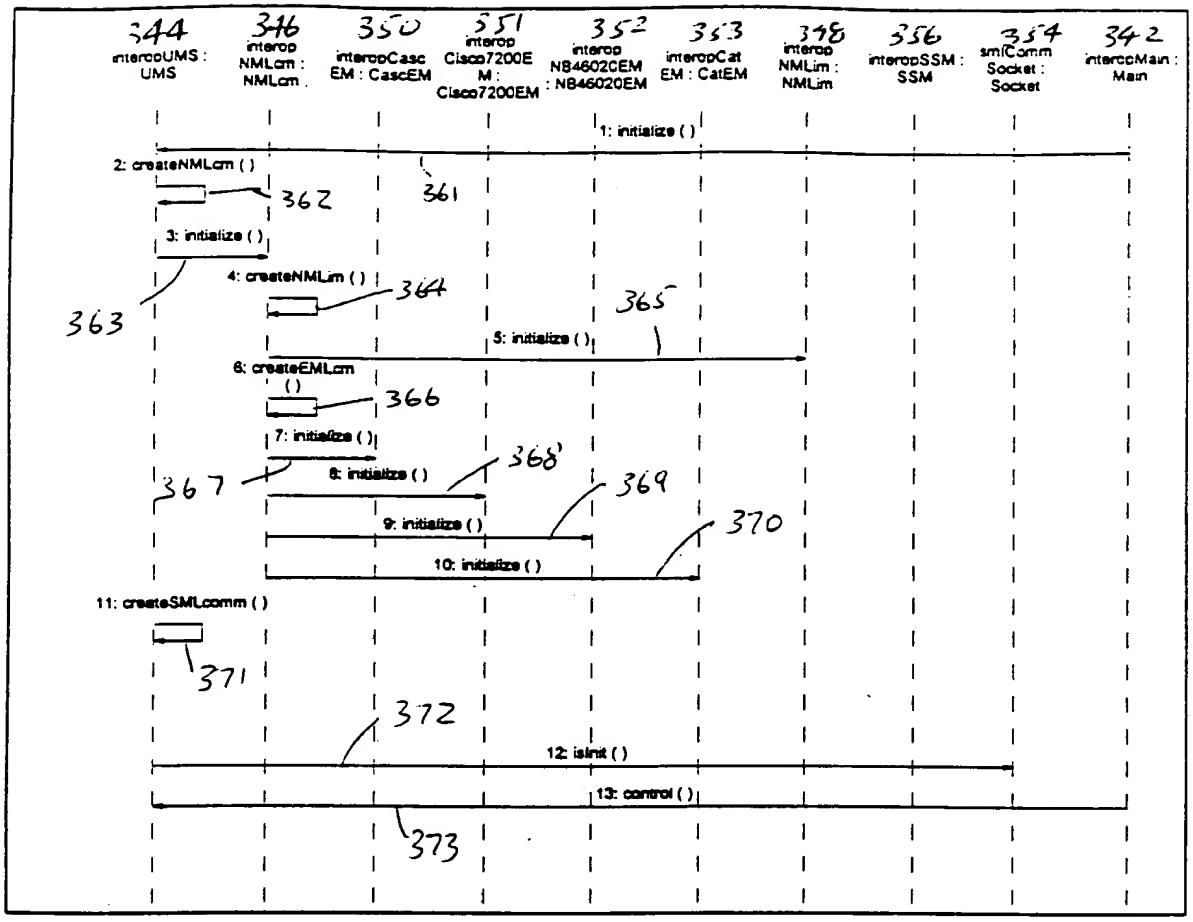

286
284
280
Provisioning Tool
282
UMS/apcon
NMLcm/NMLim
290
Cisco7200EM
CascEM
NB46020EM
CatEM
292
Telnet
Client
DSET
Telnet
294
294
STOX-9000
294
294

FIG. 12


interop
SSM : SSM
356
C:apcon()
Wait for
commands
6: createEMLcm
( )
366
4: createNMLim ( )
364
smlComm
Socket :
Socket
354
362
2: createNMLcm ( )
371
11: createSMLcomm ( )
346
348
365
The control
begins with
interopMain
12: isInit ( )
372
interopNMLcm :
NMLcm
5: initialize ( )
interopNMLim :
NMLim
3: initialize ( )
createUMS
10: initialize ( )
370
interop
Main : Main
1: initialize ( )
interop
UMS : UMS
363
13: control ( )
7: initialize ( )
9: initialize ( )
interopCat
EM : CatEM
8: initialize ( )
369
367
368
342
361
373
344
353
interopCasc
EM : CascEM
interop
Cisco7200EM :
Cisco7200EM
interop
NB46020EM :
NB46020EM
350
351
352

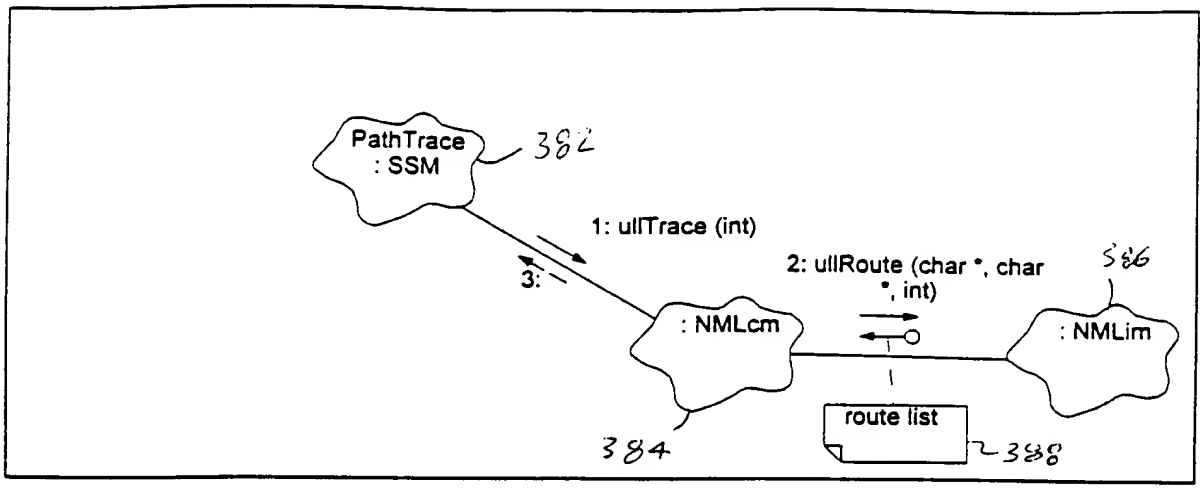
340

Fig. 13


344
interopUMS : UMS
346
interop NMLcm : NMLcm
350
interopCascEM : CascEM
351
interop Cisco7200EM : Cisco7200EM
352
interop NB4602CEM : NB46020EM
353
interopCatEM : CatEM
348
interop NMLim : NMLim
356
interopSSM : SSM
354
smfComm Socket : Socket
342
interopMain : Main
1: initialize ( )
2: createNMLcm ( )
362
361
3: initialize ( )
4: createNMLcm ( )
364
365
363
5: initialize ( )
6: createEMLcm ( )
366
7: initialize ( )
367
8: initialize ( )
368
369
9: initialize ( )
370
10: initialize ( )
11: createSMLcomm ( )
371
372
12: isInit ( )
13: control ( )
373

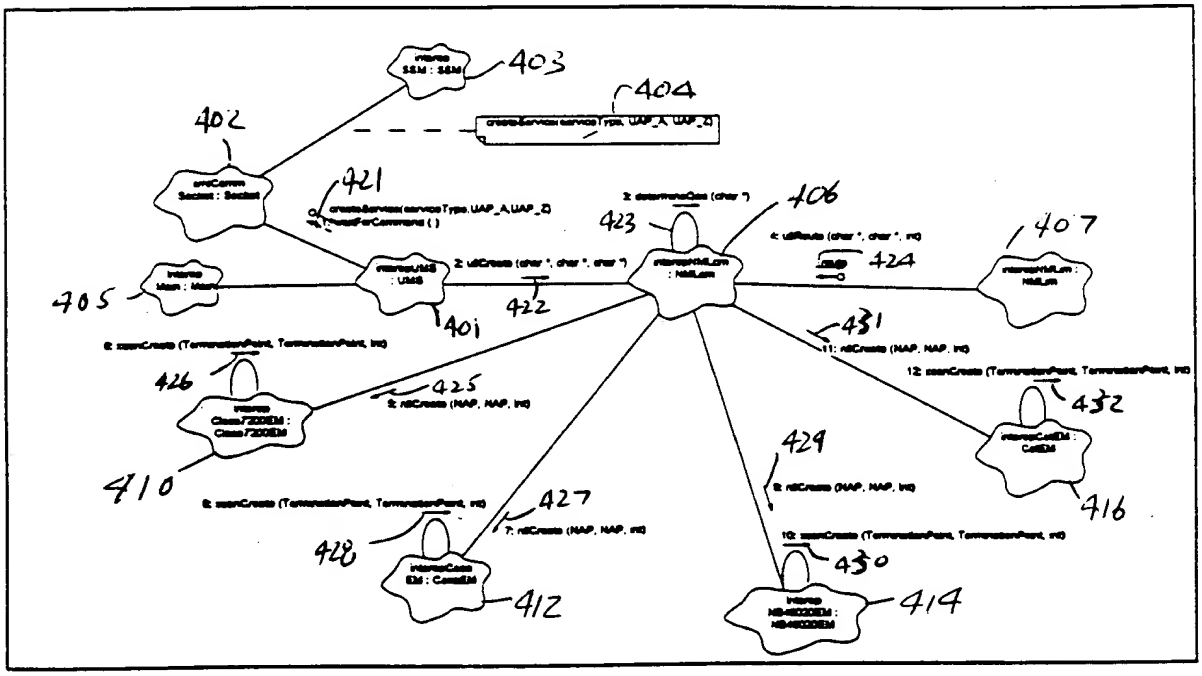
360

Fig. 14



380

Fig. 15



400

Fig. 16

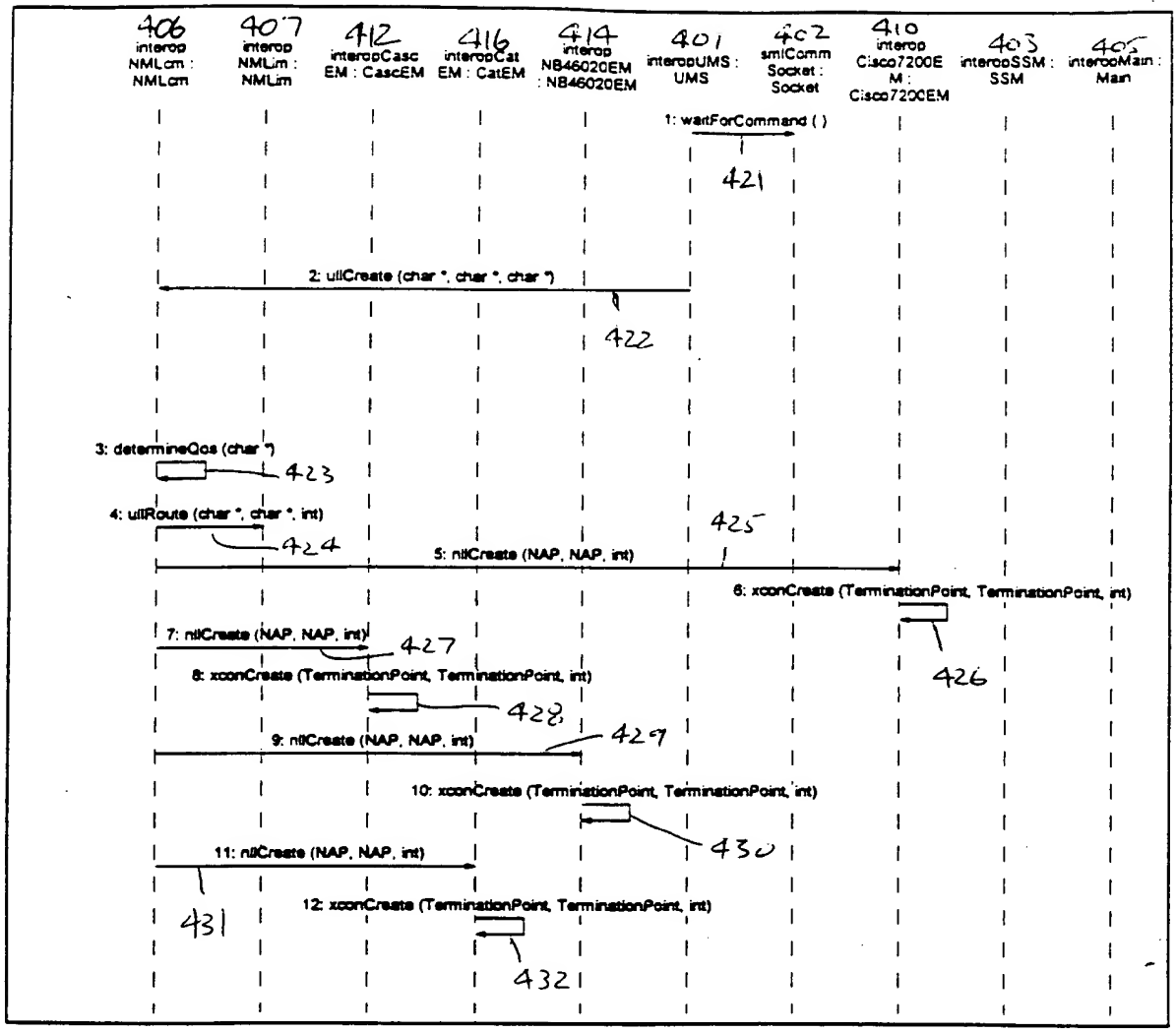
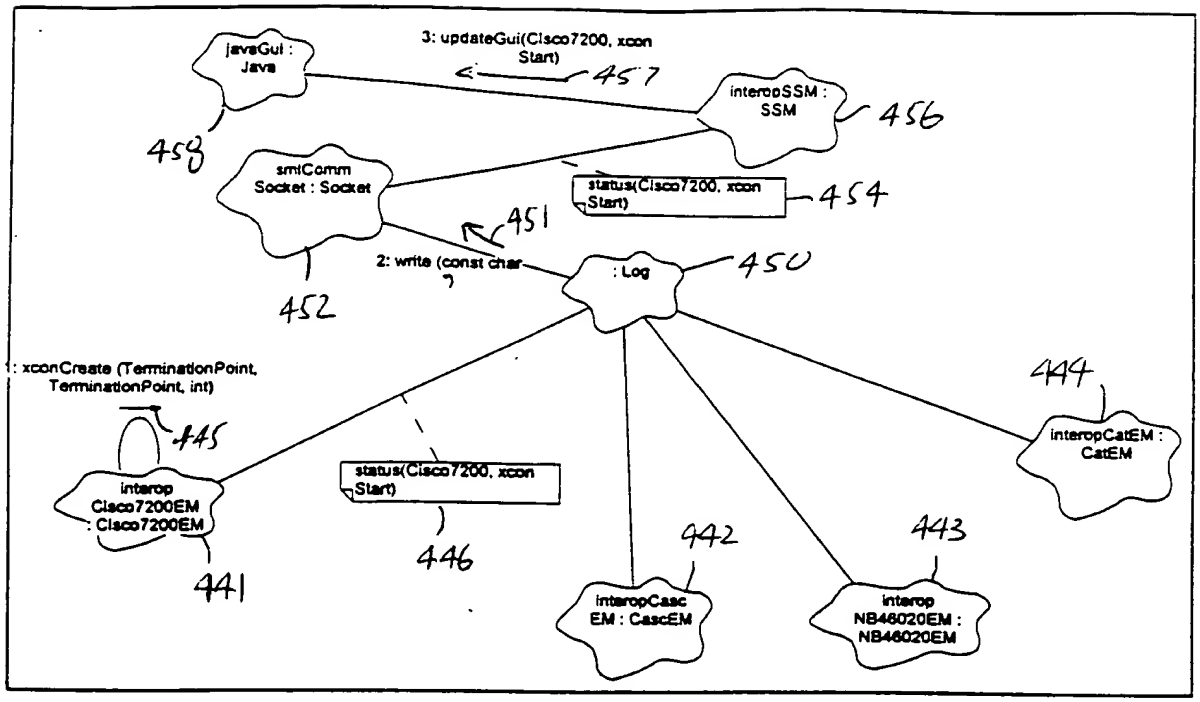

406
interop NMLcm : NMLcm
407
interop NMLm : NMLm
412
interopCasc EM : CascEM
416
interopCat EM : CatEM
414
interop NB46020EM : NB46020EM
401
interopUMS : UMS
402
smlComm Socket : Socket
410
interop Cisco7200EM : Cisco7200EM
403
interopSSM : SSM
405
interopMain : Main
1: waitForCommand ( )
421
2: ullCreate (char *, char *, char *)
422
3: determineQos (char *)
423
4: ullRoute (char *, char *, int)
424
425
5: nllCreate (NAP, NAP, int)
6: xconCreate (TerminationPoint, TerminationPoint, int)
426
7: nllCreate (NAP, NAP, int)
427
8: xconCreate (TerminationPoint, TerminationPoint, int)
428
9: nllCreate (NAP, NAP, int)
429
10: xconCreate (TerminationPoint, TerminationPoint, int)
430
11: nllCreate (NAP, NAP, int)
431
12: xconCreate (TerminationPoint, TerminationPoint, int)
432

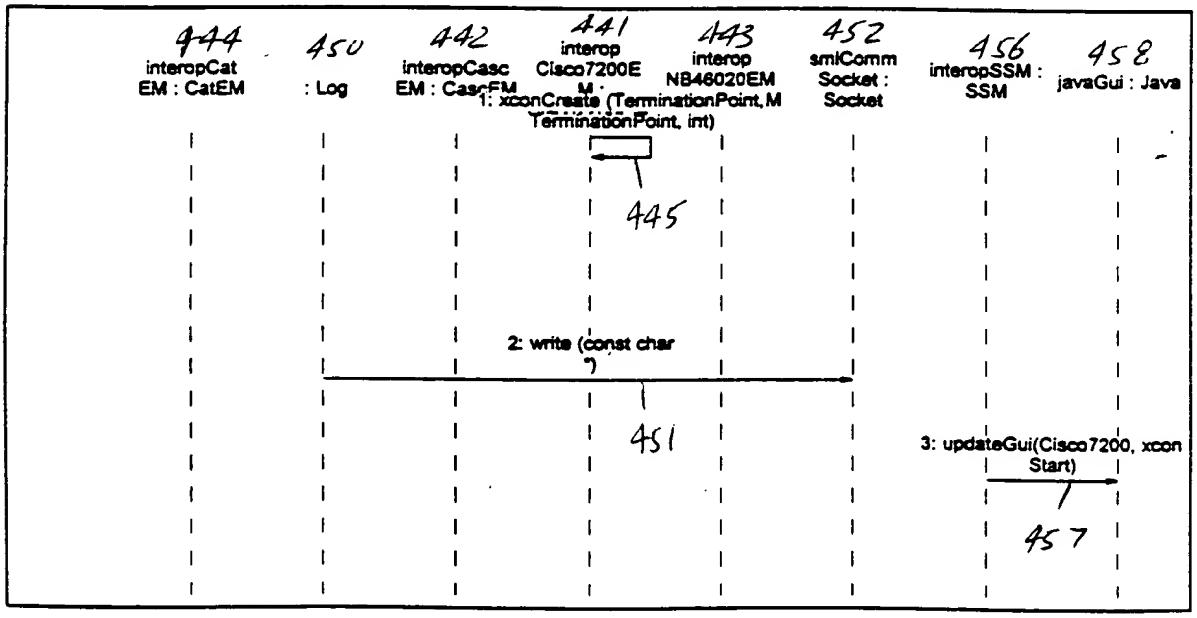
Fig. 17

420



440

Fig. 18



460

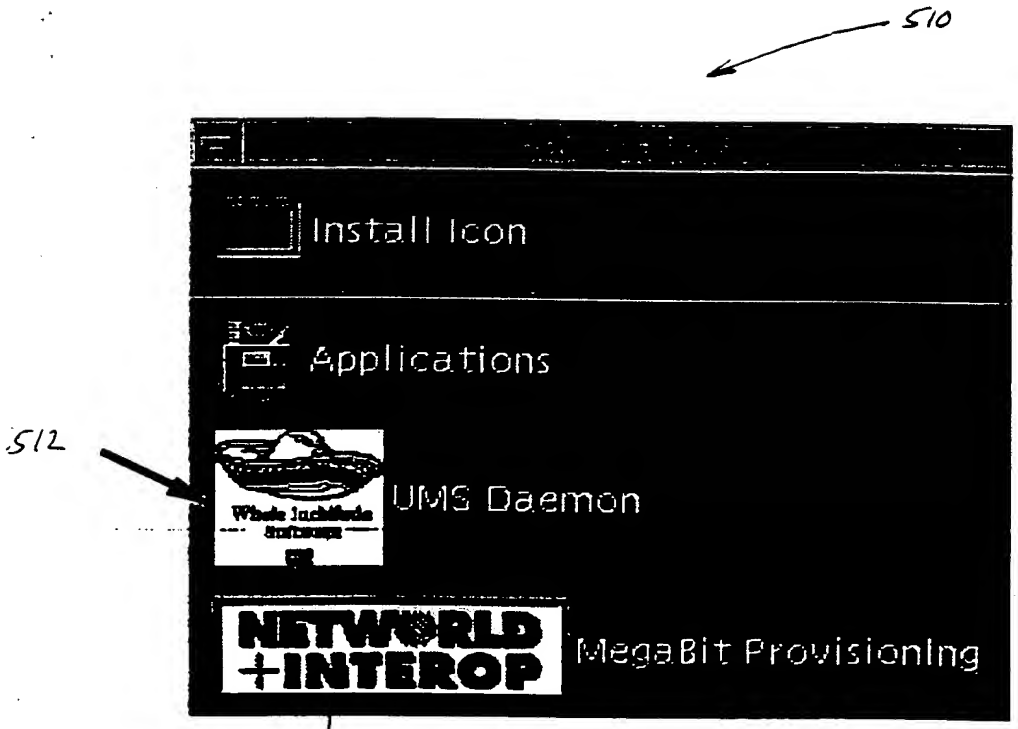
Fig. 19

502

504

500

Fig. 20



510

512

514

Fig. 21

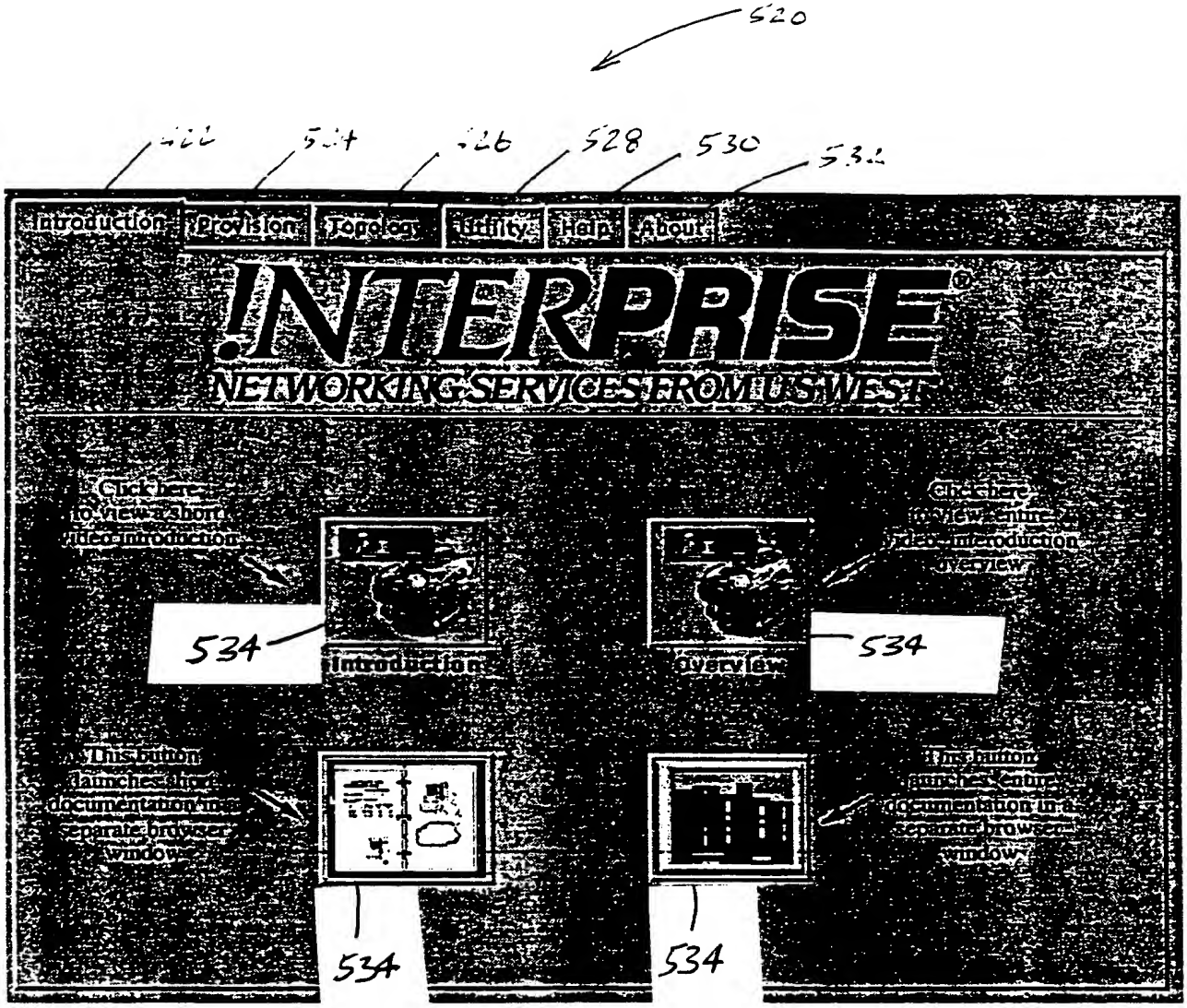

520
522
524
526
528
530
532
Introduction
Provision
Topology
Utility
Help
About
INTERPRISE
NETWORKING SERVICES FROM U S WEST
Click here to view a short video introduction
Introduction
Click here to view a short video introduction
Overview
534
534
This button launches short documentation in a separate browser window
This button launches short documentation in a separate browser window
534
534

Fig. 22

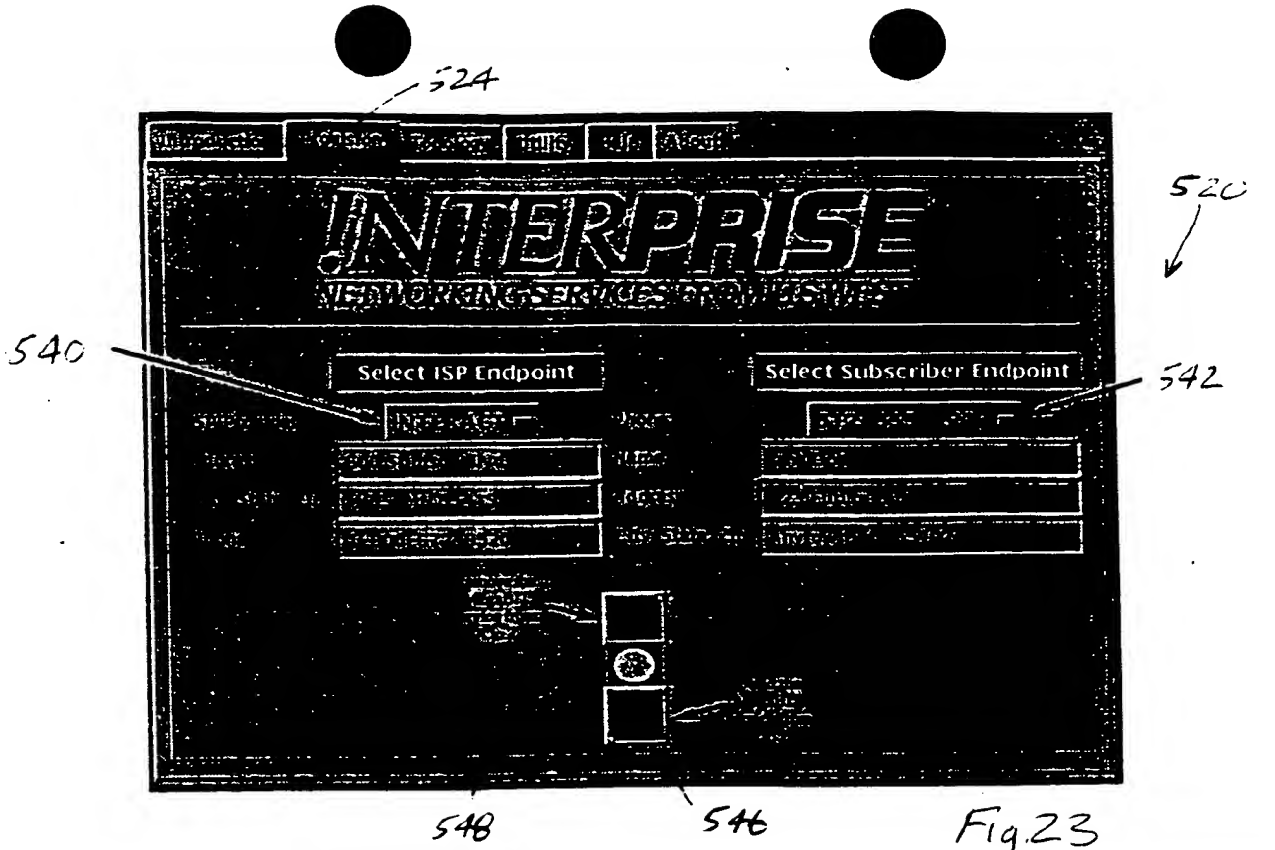

524
520
!NTERPRISE
Select ISP Endpoint
Select Subscriber Endpoint
540
542
548
546

Fig.23

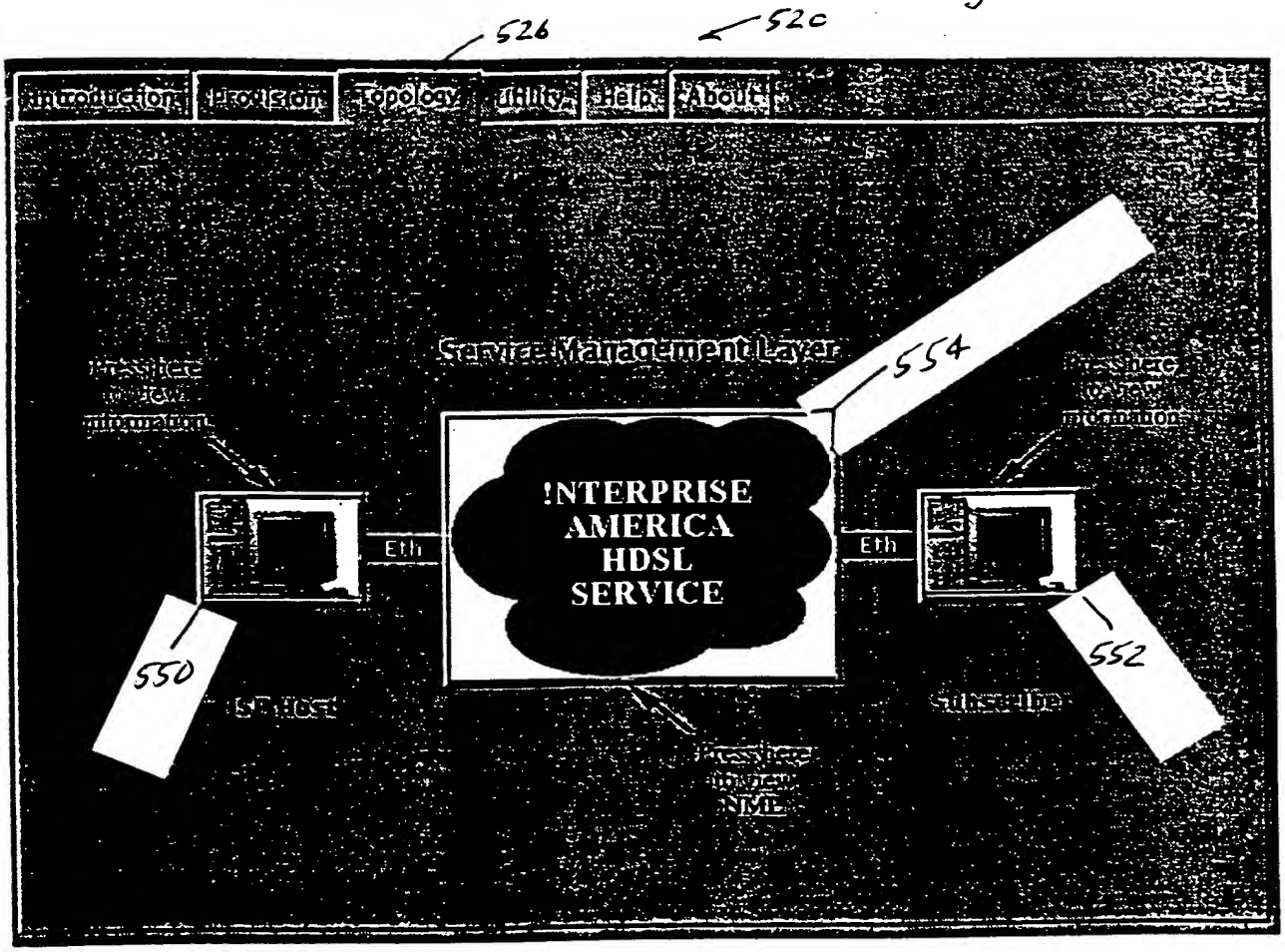

526
520
Introduction
Provision
Topology
Utility
Help
About
Service Management Layer
554
!NTERPRISE
AMERICA
HDSL
SERVICE
Eth
Eth
550
552

Fig.24

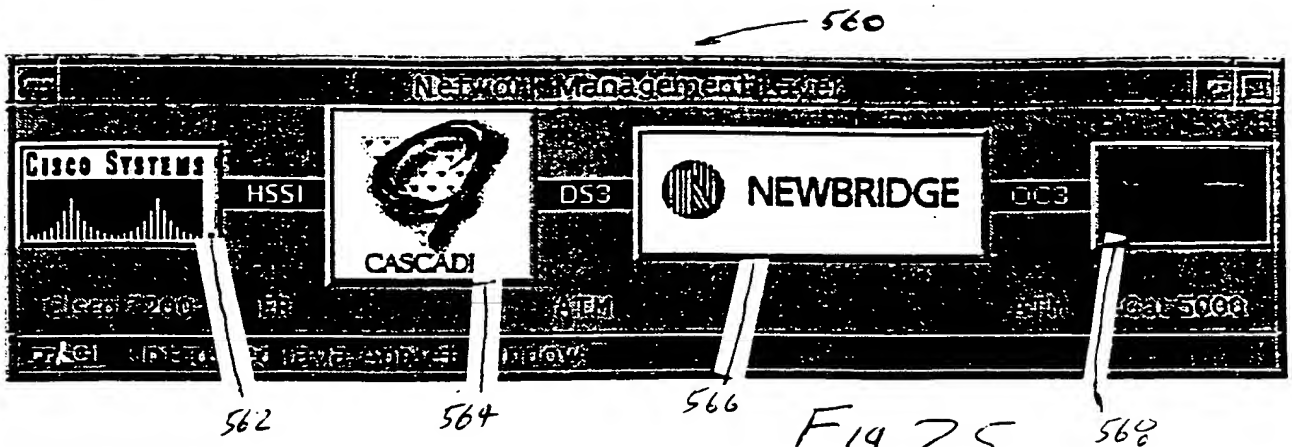


Fig. 25

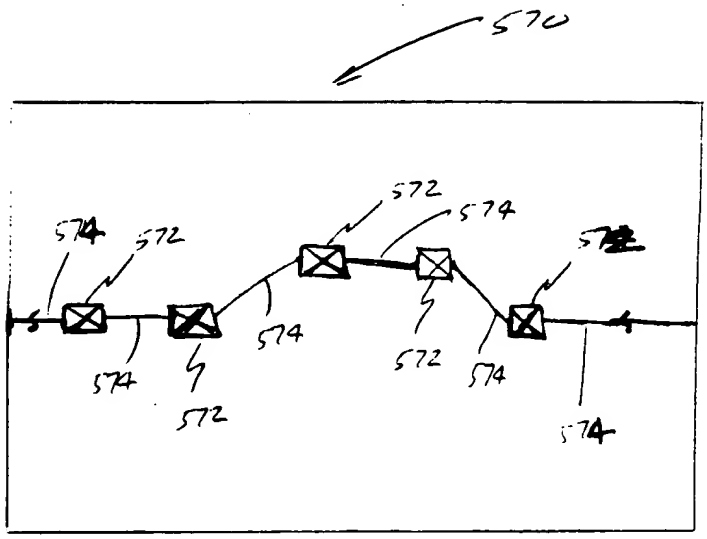


Fig. 26

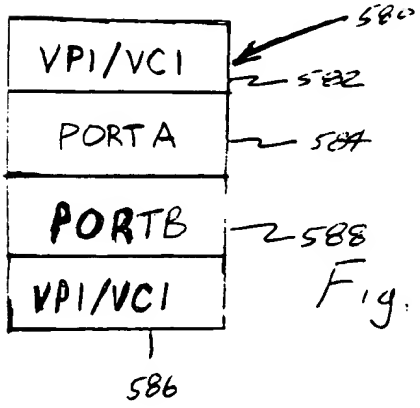


Fig. 27

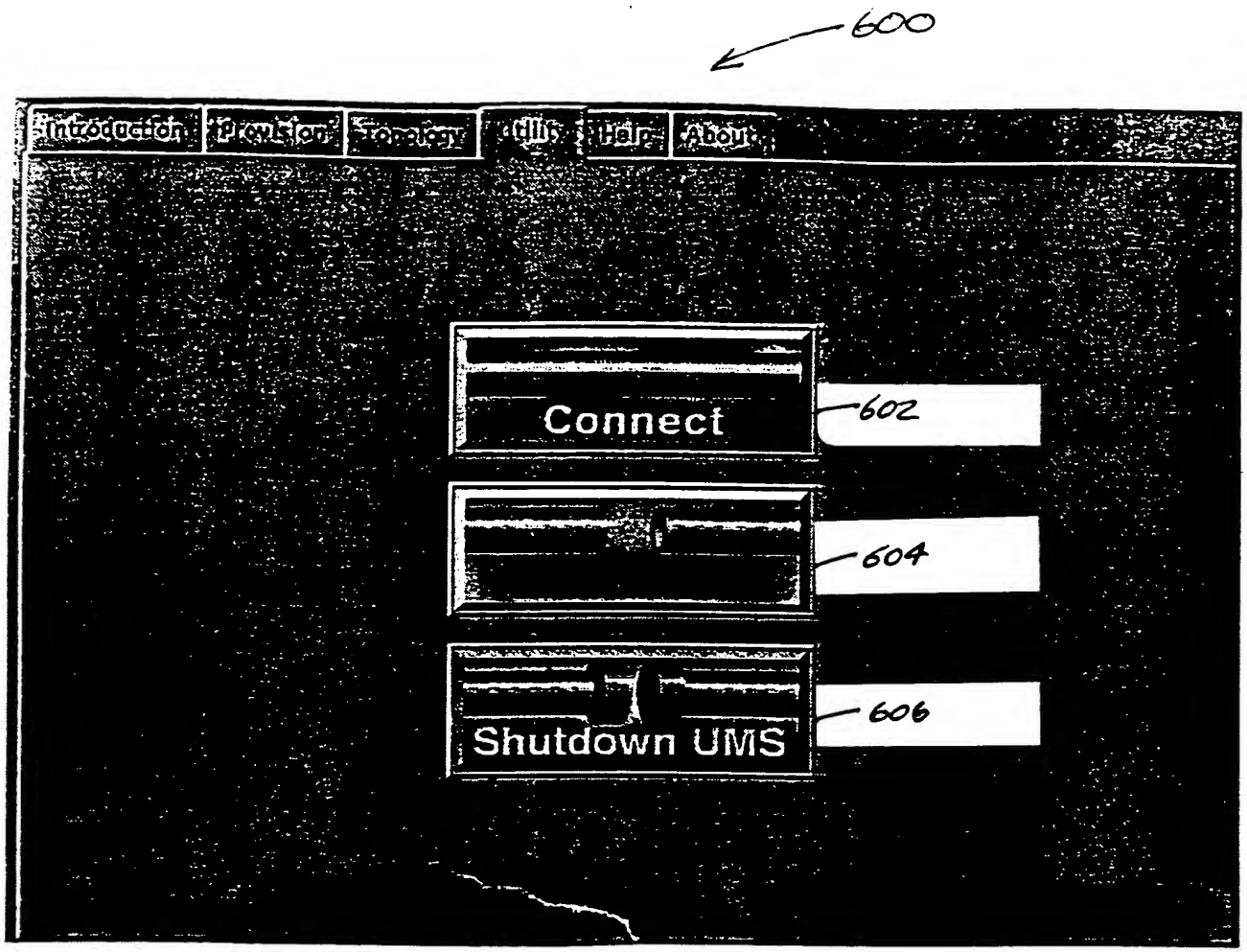

600
Introduction
Topology
Help
About
Connect
602
604
Shutdown UMS
606

Fig. 28

DETECT DOCUMENTS

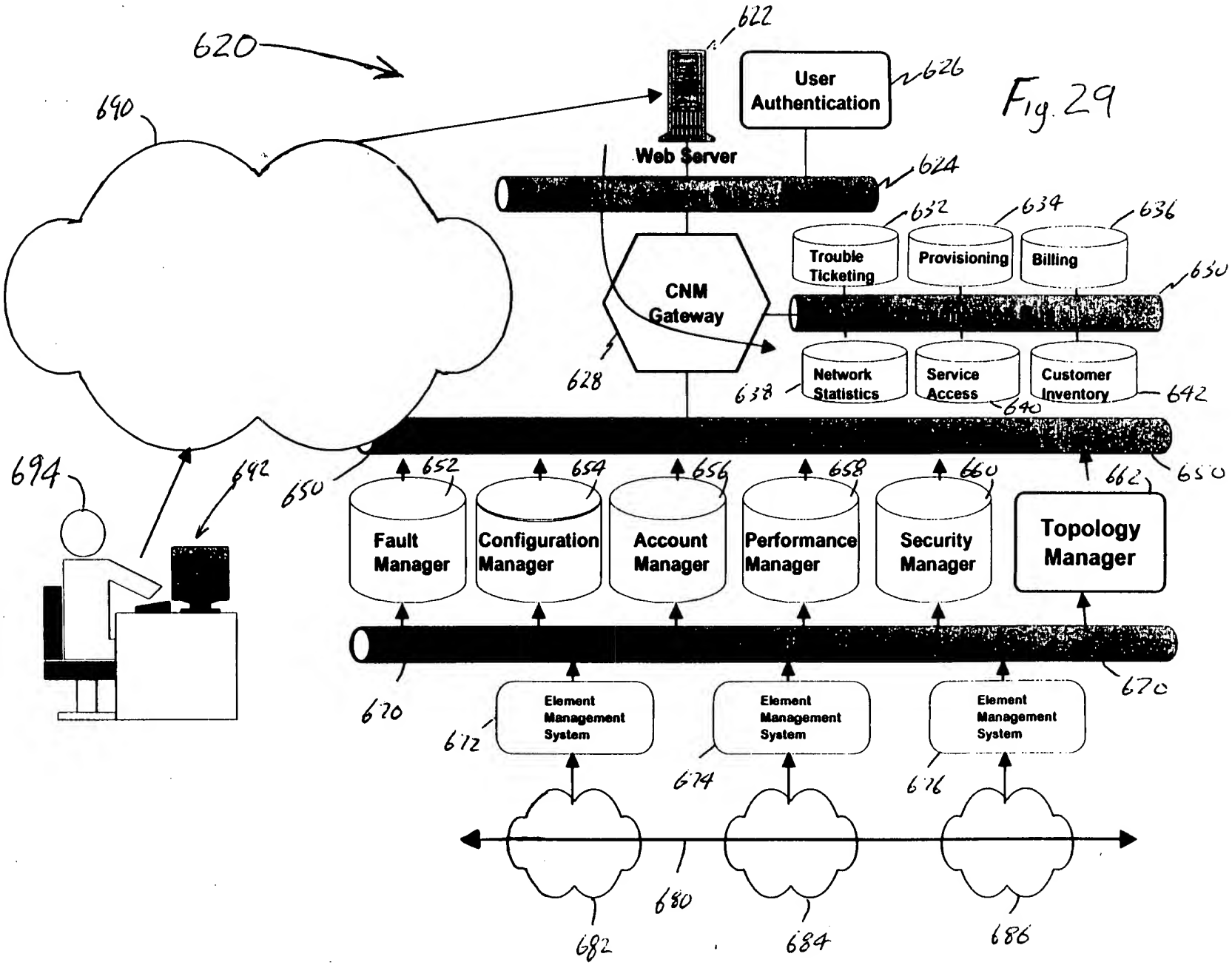


Fig. 29

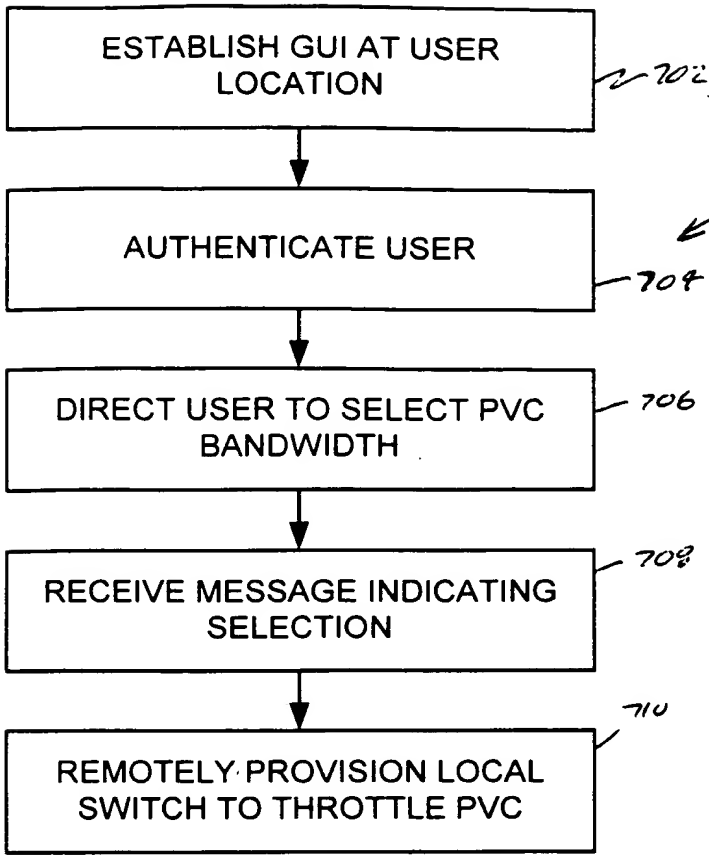

ESTABLISH GUI AT USER LOCATION
702
700
AUTHENTICATE USER
704
DIRECT USER TO SELECT PVC BANDWIDTH
706
RECEIVE MESSAGE INDICATING SELECTION
708
REMOTELY PROVISION LOCAL SWITCH TO THROTTLE PVC
710

Fig. 30

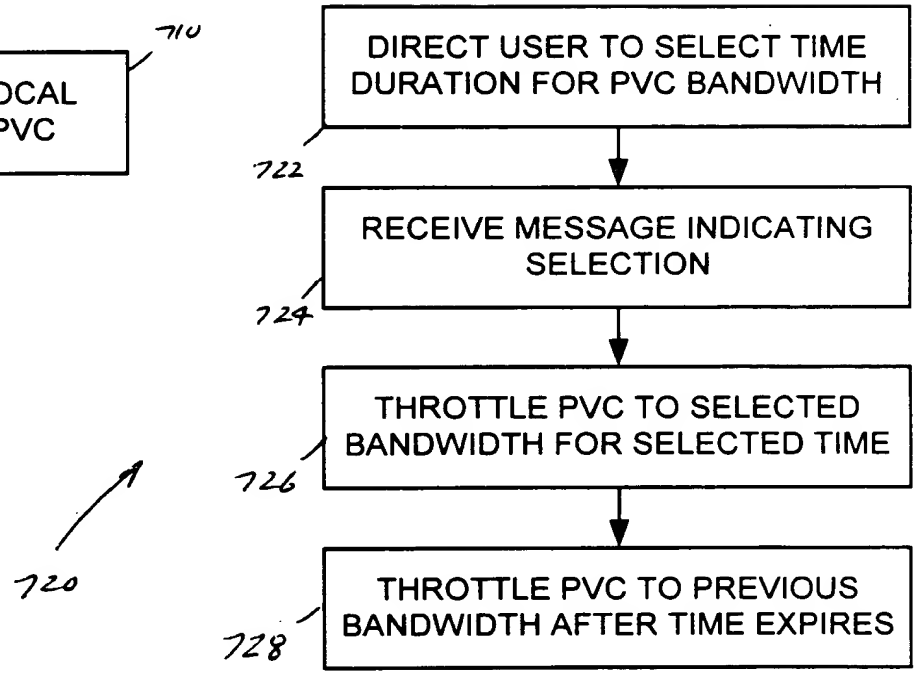

DIRECT USER TO SELECT TIME DURATION FOR PVC BANDWIDTH
722
RECEIVE MESSAGE INDICATING SELECTION
724
THROTTLE PVC TO SELECTED BANDWIDTH FOR SELECTED TIME
726
720
THROTTLE PVC TO PREVIOUS BANDWIDTH AFTER TIME EXPIRES
728

Fig. 31